

BIROn - Birkbeck Institutional Research Online

de Gayardon, A. and Callender, Claire and DesJardins, S. (2022) Does student loan debt structure young people's housing tenure? Evidence from England. *Journal of Social Policy* 51 (2), pp. 221-241. ISSN 0047-2794.

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/42339/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

Does student loan debt structure young people's housing tenure? Evidence from England.

Ariane de Gayardon¹, Claire Callender², & Stephen L. DesJardins³

¹ Centre for Global Higher Education, UCL Institute of Education, 20 Bedford Way, London WC1H 0AL, United Kingdom and Center for Higher Education Policy Studies, University of Twente, Enschede, Netherlands.

a.gayardon@ucl.ac.uk

+44 20 7911 5344

ORCID: 0000-0002-0010-1464

² Centre for Global Higher Education, UCL Institute of Education and Birkbeck, 26 Russell Square, London WC1B 5DQ, United Kingdom.

ORCID: 0000-0002-8795-707X

³ Center for the Study of Higher and Postsecondary Education, University of Michigan, 610 E University Ave, Ann Arbor, MI 48109, United States

Acknowledgments: This research was supported by the Economic and Social Research Council, the Office for Students and Research England under Grant ES/M010082/1. We are grateful to Nick Gallent for his helpful comments on this paper and to UCL and UK Data Service for providing access to the following dataset: University College London, UCL Institute of Education, Centre for Longitudinal Studies. (2018). Next Steps: Sweeps 1-8, 2004-2016. [data collection]. 14th Edition. UK Data Service. SN: 5545, <http://doi.org/10.5255/UKDA-SN-5545-6>

Does student loan debt structure young people's housing tenure? Evidence from England.

Abstract

This article analyses the interaction between two policy areas affecting young people in England – housing and student funding. It is the first of its kind exploring a range of dynamics in the relationship between housing and student loan debt. Young people today are far less likely to own their home and are more likely to live with their parents than earlier generations. In parallel, higher education tuition fee increases have led to a growing share of students taking out loans and graduating with higher debt, which they will be repaying for most of their working lives. This research examines the relationship between student loans – having borrowed for higher education and attitudes towards debt – and housing tenure at age 25, using the Next Steps dataset. We find that young graduates who did not borrow for higher education are more likely to own their home and less likely to rent or live with their parents than graduates who borrowed for their studies or young people who never attended higher education. These results suggest that higher education funding policies and student loan debt play important roles in structuring young people's housing in England.

Keywords: housing, young people, homeownership, parental co-residence, higher education, student loans

Wordcount: 7964

Introduction

Most young people in England face a challenging housing market with ripple effects for their families, society, and the economy. Researchers and the media portray this as a “housing crisis,” manifested by rising property prices, declining affordable housing, falling homeownership rates, and rising levels of long-term renting, in part fuelled by an insecure labour market with stagnating wages (Gallent, 2019; Roberts et al., 2020). Two main consequences arise, distinguishing the housing tenure of Millennials from earlier generations. First, most young people cannot afford to buy a home and are being priced out of homeownership (Cribb et al., 2018). Second, they are more likely than earlier generations to live with their parents. Numerous factors contribute to these trends. Some researchers and policymakers suggest that growing student debt, which is the focus of this paper, is playing a role (McKee and Soaita, 2018; Stone et al., 2011).

How might student debt affect graduates’ housing?¹ It might inhibit homeownership and encourage parental co-residence in several ways. Lower take-home pay resulting from loan repayments means less disposable income. Borrowers might save less and take longer to raise a deposit for a mortgage (Andrew, 2010). Lower take-home pay also means borrowers have less to spend on monthly mortgage repayments if they succeed in obtaining one (McKee et al., 2017). Student loan repayments, which continue well into a graduates’ working life, are factored into a lender’s assessment of both current and future ability to service a mortgage. This affects the amount graduates with student loans can borrow and the properties they can buy. Borrowers may also find some mortgage lenders unwilling to lend because of existing student debt and the recent tightening of lending regulations (Edmonds, 2014). In addition, the psychological burden of debt may deter some from taking on additional loans. Some researchers hypothesize that holding student debt leads to self-selection out of homeownership based on deepened debt aversion (e.g. Elliott and Lewis, 2015).

Graduate borrowers’ lower take-home pay might also render renting unaffordable, especially in the costly private sector, making parental co-residence financially more attractive or the only option. Parental co-residence is by far the cheapest housing alternative because of no or very low rent and utility bills. It might also be a pathway to homeownership, allowing individuals to save for a mortgage deposit (Roberts et al., 2016), which might be difficult or impossible while paying high rent.

Understanding the role played by student debt in limiting young people’s housing options, or maybe fuelling the housing crisis, is important because of the potential repercussions for young people, society, and the economy. Housing issues have contributed to the lengthening of the transition to adulthood, including extending the time when young people leave the parental home or enter into homeownership, thereby making them dependent on their parents for financial or in-kind support for a longer period of time (McKee et al., 2017). Because young people’s housing options are increasingly dictated by their parents’ financial resources, their housing tenure may perpetuate existing social and economic inequalities (Christophers, 2018; Coulter, 2018), potentially contributing to a more unequal society. Also, homeownership – the most significant source of individual and national wealth (Appleyard and Rowlingson, 2010) – is important for economic growth. If student debt is a barrier to homeownership, it may have negative social and economic consequences.

This paper contributes to the literature on the housing challenges faced by young people. It provides new insights by exploring the relationship between both student debt and attitudes towards debt and graduates’ housing options, including homeownership and parental co-residence. This research

is significant because, to the best of our knowledge, no other study has examined these relationships in the English context, where debt repayments are based on graduates' income. Extant research primarily focuses on student loan systems that have time-based repayment schemes with fixed-term repayments. This study brings together two increasingly important areas of social policy for young people: housing and higher education – policy arenas rarely examined together. It also sheds light on the post-graduation consequences of student debt and their role in potentially promoting or undermining the benefits of higher education (HE). Specifically, while student loans can be an instrument of equity by allowing access to HE, loans' possible relationship to housing tenure could strengthen wealth inequities among young people.

The English policy context

Housing

The housing problems young people face are evidenced in the decline in homeownership and the rise in parental co-residence. Despite shifts in their housing aspirations (Preece et al., 2019), most young people in England want to buy a home. In 2018, 85 percent of 16-25 year-olds preferred homeownership to renting (MHCLG, 2019b). Yet, only 37.6 percent of 25-34 year-olds were owner-occupiers in 2017-18, compared to 66.5 percent in 1991 (MHCLG, 2019a). Rising house prices has made homeownership unattainable for many young people. The housing affordability ratio, measuring the ratio of house prices to earnings, doubled between 1997 and 2016 reaching 7.72 (ONS, 2017) because of escalating house prices associated with rising demand due to the financialization of the housing market (Gallent, 2019). This is particularly problematic for young people at the beginning of their career, earning low starting salaries. The affordability issue faced by young people is, however, more complex than just increased house prices. As Preece et al. (2019) argue: “the (un)affordability of homeownership cannot solely be conceptualized as a housing issue, but is structured by labour market conditions, mortgage finance and the nature of welfare systems” (p. 7). And as argued here, it may also be affected by HE funding policies.

As young people lack access to homeownership and to social housing (McKee and Soaita, 2018), many turn to private renting. But some are priced out of that sector too. Over the last decade, private sector rents, especially in London and the South East, have risen significantly (ONS, 2019). The affordability of rising rents is also related to the labour market, access to housing benefits, and potentially student debt. Consequently, graduates' housing options are constrained.

The rise in both house prices and private sector rents are linked to the growth in parental co-residence among young people. In 2017 in England, 26 percent of 20-34 year-olds lived with their parents, up from 20 percent in 1996. There were large regional variations ranging from 30 percent in the West Midlands to 22 percent in Yorkshire (ONS, 2018). Living independently has become an unpredictable transition for young generations, with more exits and returns to the parental home (Furlong and Cartmel, 2007). The housing and labour markets play key roles in these patterns of parental co-residence (Newman and Aptekar, 2008), but other factors are important, such as the lengthening of educational careers (Christie et al., 2002) and returns to the parental home after a period of living away, including for HE. Economic factors also remain significant barriers to housing independence. One such suggested factor is rising levels of student loan debt and associated repayments (Stone et al., 2011).

Student loan debt

With the expansion of undergraduate HE in England, since the 1990s successive governments have introduced cost-sharing policies – primarily higher tuition fees repaid by government-funded

income-contingent student loans.² These policies aim to shift more HE costs from government to students. As study costs have risen, so has reliance on student loans. All English domiciled full-time undergraduates qualify for loans covering all their tuition fees and means-tested maintenance loans towards their living costs. In 2017-18, with tuition fees of £9,250 and no maintenance grants, 94 percent of full-time undergraduates took out a tuition fee loan and 89 percent a maintenance loan (Bolton, 2020). Students today can expect to graduate with average debts over £50,000. Since the abolition of maintenance grants in 2016, student loan debt has become unequally distributed. Students from the poorest 40 percent of families will graduate with average debts of about £57,000, compared with £43,000 for students from the richest 30 percent of families (Belfield et al., 2017a).

Students start repaying their loans once they leave HE and their income reaches a threshold.³ They then pay nine percent of their earnings above the threshold until their loans are paid off, with any outstanding debt forgiven after 30 years. The more graduates earn, the larger their repayments, making the repayment system progressive and protecting low-earning graduates from high repayments. An estimated 83 percent of graduates will not repay their loan in full within 30 years (Belfield et al., 2017b). Consequently, most students will be repaying their debts for most of their working lives. Significantly, monthly repayments deducted from graduates' pay packet are dictated by graduates' earnings and not the total amount borrowed, unlike time-based repayment schemes found, for instance, in the United States (US) where repayments are not linked to a graduates' capacity to repay. In an income-contingent plan, large student loans increase the time it takes to pay them off, but not monthly loan repayments. These design features of income-contingent loans might protect graduates and render their student debt irrelevant to their housing options. Alternatively, the fact that most graduates will be saddled with loan repayments for most of their working lives might matter for their financial resources. Moreover, the psychological burden of carrying debt – which can shape students' HE decisions (e.g. Callender and Mason, 2017) – might influence housing options too.

Literature review

The literature on student debt and homeownership is almost exclusively focused on the North American context and unanimous in two respects. First, holding student debt is negatively associated with homeownership (Elliott and Lewis, 2015; Luong, 2010; Miller and Nikaj, 2018). Second, student debt relates negatively to housing value and equity (Elliott et al., 2013; Elliott and Lewis, 2015; Hiltonsmith, 2013). The literature, however, is conflicted on the effect of the level of student debt. Several studies uncovered a negative relationship between the amount of student loan debt and homeownership (Elliott et al., 2013; Mezza et al., 2015; Miller and Nikaj, 2018), but others fail to find any association (Gicheva and Thompson, 2015; Velez et al., 2019) including a study from Australia, where income-contingent loans are used (Marks, 2009).

The negative relationship between student loan debt and homeownership is associated with mortgage requirements. Evidence from the US and England suggest student loans impede access to mortgages (Andrew, 2010; Mishory and O'Sullivan, 2012). In England, Andrew (2010) estimates that student loans delay saving for a mortgage deposit by at least two years. However, not all agree that credit eligibility is the issue (Mezza et al., 2015; Shand, 2007). Others hypothesise that borrowers self-select out of homeownership, experience deepened debt aversion, or face tightened mortgage eligibility criteria (Brown et al., 2014; Elliott and Lewis, 2015; Lee, 2013).

Research on the potential link between student debt and parental co-residence is scarce and contradictory. In Australia, Marks (2009) finds that higher levels of student debt are moderately associated with living with parents. In England, a survey finds that student debt prevents graduates

from leaving the parental home (Purcell et al., 2012). In the US context, one study finds a positive association between higher levels of student debt and parental co-residence (Bleemer et al., 2014), while another finds no link (Houle and Warner, 2017).

The literature on the relationship between student debt and housing tenure is, however, limited. First, except for three studies, two English and one Australian, all the studies cited were conducted in North America where student loan repayments are based on a fixed time-based repayments. The generalizability of the findings from these studies to countries where student loan repayments are income-contingent, such as England, might be problematic. Second, many studies fail to control for geographic disparities, ignoring large variability in house prices that may affect homeownership and rents. Finally, whereas the literature has explored the financial burden of debt, to our knowledge, no research has examined the role of attitudes towards student loan debt on housing tenure. Our paper addresses these limitations.

Data and methods

Data and respondents

This study uses the Next Steps dataset to examine the relationship between debt and housing issues. Next Steps first interviewed 13-14 year old individuals born in 1989-1990 in England. It used a two-stage stratified random sampling, with schools as primary sampling units stratified by deprivation status⁴ and pupils as second stage with different probabilities based on ethnicity (DfE, 2011). Individuals were surveyed annually until the age of 19-20 and again at the age of 25 (sample attrition is provided in Appendix Table 1). Information in Next Steps covers a wide array of topics including family, schooling, work, and health.

Most Next Steps respondents reached the age of 18 in 2007-08 and would have entered HE in 2008-09, graduating three years later. As full-time students, they were initially charged annual tuition fees of £3,145 which subsequently rose in line with inflation (The Student Fees (Amounts) (England) (Amendment) Regulations 2008, 2008). They could receive tuition fee loans covering all their fees. They were also eligible for maintenance loans with low-income students qualifying for maintenance grants too. Most Next Steps respondents finished their first degree in 2011 with an average of £17,000 in loan debt (SLC, 2018). This means that by age 25 most had been repaying their loans for three years, having started repayments in April 2012.

The loan repayment income threshold was £15,000 in 2012, reaching £18,935 in 2019-20 (SLC, 2020). Outstanding student loan balance for the Next Steps generation will be forgiven after 25 years.⁵

A total of 7,707 individuals responded to the Age 25 wave of Next Steps. There were 690 individuals who entered HE but failed to provide information about student loans and are excluded from our sample. The sample size for this study is therefore 7,017 individuals.⁶ The variables included come from all waves of Next Steps: the Age 25 wave for housing tenure information, the age 18, 19 and 25 waves for student loan information, and the parental questionnaires from the first four waves (ages 13 to 16).

Methodological Framework

We analyse the relationship between student debt and housing options by evaluating housing tenure in relationship to borrowing and attitudes toward debt. First, we use treatment effects to evaluate the differences in housing tenure for three groups of 25 year olds: those who did not attend HE (non-graduates), those who attended HE and took out student loans (graduate

borrowers), and those who attended HE but did not borrow (graduate non-borrowers). Specifically, we estimate four models with different outcomes: 1) homeownership, 2) renting, 3) parental co-residence, and 4) the difference in reasons for parental co-residence

Due to self-selection into HE and loan take-up, one concern is potential endogeneity, which may bias the estimates. To mitigate such potential problems, a rich set of background variables associated with HE enrolment and loan take-up – including demographics, socio-economic variables, and type of schooling – are included in the models. This “selection on observables” approach could, however, be insufficient if not all confounders are controlled for. Nevertheless, statistical tests⁷ suggest that for most models estimated, selection on unobservables may not be an issue.

Our use of treatment effects with a multivalued treatment allows comparisons across three treatment categories of interest (non-graduates, graduate non-borrowers, graduate borrowers). Regression-adjustment (RA), augmented inverse probability weighting (AIPW), and inverse probability weighting with regression adjustment (IPWRA) estimators are employed and yield similar results. The IPWRA estimator is the preferred model because of its doubly robust property, meaning that only one of the treatment or outcome models estimated has to be correct to properly estimate the treatment effects (Drukker, 2016). In addition, the IPWRA command in Stata allows us to estimate the average treatment effect on the treated (ATT) which is essential because not everyone in our sample qualifies for HE or student loans.

Second, we regress housing outcomes on debt attitude for graduate borrowers only. Debt aversion may prompt individuals to self-select out of some housing options, as they might be unwilling to take on additional loans – including a mortgage – or to pay high rents. We exploit variation in debt attitudes and housing outcomes using logistic regression⁸ and the same four outcomes described above. The independent variables consist of six debt attitude statements included in the Next Steps waves when respondents were age 16, 17 and 18 (Table 1). The responses from the age 16 wave are used because most respondents had already applied to HE by age 17, and entered HE by age 18. Using measures from the latter two waves would be problematic because students’ HE choices may affect their attitudes towards debt (Oosterbeek and van den Broek, 2009).

[Insert Table 1 near here]

To evaluate the association between student debt and housing options, the models include factors that may confound these relationships. Gender, race, and religion have all been linked to housing tenure (Coulter, 2016; Stone et al., 2011) and could be related to earnings differentials, affecting housing affordability. The income and socio-economic background of respondents’ parents are included in the models because they influence intergenerational resource transfers and respondent’s ability to pay for housing (Avery et al., 1992; Blaauboer, 2010). Socio-economic background is also key in the decision to take up student loans (de Gayardon et al., 2019). Parents’ housing tenure also matters because of intergenerational continuity in housing tenure stemming from shared values (Coulter, 2016). Geographical variables⁹ are included in the model to control for regional differences in the housing market that shape individuals’ ability to rent or buy (Coulter, 2016). Both average (mean) house prices and average monthly change in housing prices are included for the year 2011 (HM Land Registry, 2019) – the year respondents left HE. We also add the number of months of employment and the income at age 19 to the outcome (housing arrangement) equation in the treatment effect model, to proxy for savings’ capacity and therefore the ability to acquire a deposit.¹⁰ Appendix Table 3 provides descriptive statistics by group of interest (non-graduates, graduate non-borrowers, graduate borrowers) for all control variables mentioned above. It also includes information on respondents’ income and living arrangements at age 25, which might

influence their housing choices but cannot be included in the models because of simultaneity issues.¹¹

All models include clustered standard errors using the school deprivation strata to adjust for the survey design.

Results

Descriptive results

Tables 2 and 3 offer insights into young people's housing tenure in England. Homeownership is the least common form of housing tenure among 25 year-olds. It is more widespread among graduate non-borrowers (28%) compared to borrowers (15%) and non-graduates (17%). This pattern is mirrored in renting, with more renters among non-graduates.

Parental co-residence is most frequent among graduate borrowers (37%) compared with graduate non-borrowers and non-graduates (33%). Among those who live with their parents, 66 percent of non-graduates never left the parental nest while 53 (66) percent of graduate non-borrowers (graduate borrowers) returned to the parental home after a period away – they are 'boomerang' children. About 56 percent of non-HE goers and a similar proportion of graduate borrowers (57%) live with their parents for financial reasons, compared to only 40 percent of graduate non-borrowers.

[Insert Table 2 near here]

The results in Table 3 indicate that graduate owner-occupiers paid higher median mortgage amounts than non-graduates. Among renters, non-graduates are more likely to live in social housing than graduates. By contrast, graduates are far more likely to rent from a private landlord. These differences are reflected in the rent paid: the median annual rent for non-graduates is £5,400, £7,950 for graduate non-borrowers and £7,200 for borrowers, suggesting that graduates without loans can afford the highest rents.

The financial arrangements for those living at home differ starkly. While 26 percent of non-graduates pay rent, only 9 and 16 percent of graduate non-borrowers and borrowers respectively do. Most graduate non-borrowers live rent-free (62%), while borrowers either live rent-free (45%) or pay towards their board (39%). Even when paying rent, the amounts paid are significantly lower than for those living in rented accommodation: parental co-residence saves, at the median, between £1,358 and £3,150 annually in rent alone.

[Insert Table 3 near here]

Higher education and borrowing status

Table 4 provides the results of the analysis of differences in housing tenure by HE and borrowing status, using binary outcomes for each potential tenure option: owning (column 1), renting (column 2), and parental co-residence (column 3). In addition, column (4) evaluates the factors affecting the reason for parental co-residence. Table 4 displays average treatment effects on the treated among those who borrowed for HE, controlling for demographics, socio-economic background, and the regional housing market. Auxiliary-equation results, including the outcome models and the treatment models, are available on request.

All else being equal, the probability of being a homeowner compared to other housing tenures for graduate non-borrowers is 16.0 percentage points higher than for non-graduates, and 13.1

percentage points higher than for graduate borrowers. At age 25, graduate borrowers seem unable to capitalise on their education in terms of homeownership, while graduate non-borrowers do. Their likelihood of being a homeowner is the same as non-graduates, even though non-graduates are more likely to be settled geographically and able to commit to a location through homeownership. Student loan debt might therefore be a contributing factor to the lack of homeownership at age 25.

The corollary of these relationships are found in columns 2 and 3, with graduate non-borrowers less likely to rent and/or be in parental co-residence. Graduate non-borrowers are 6.4 percentage points less likely to rent than non-graduates and 7.4 percentage points less likely than graduate borrowers. Furthermore, the probability of parental co-residence for graduate non-borrowers is 9.3 percentage points lower than the 40 percent likelihood that would be observed if no one went to HE (the potential outcome mean for non-graduates).

Among those who live with their parents, graduate borrowers are disproportionately likely to say they cannot afford to live independently. Specifically, the probability of citing a financial reason is 10.0 percentage points higher than for non-graduates, and 12.5 percentage points higher than for graduate non-borrowers. The last result is not statistically significant, however.

[Insert Table 4 near here]

Debt attitude

Table 5 provides the estimated marginal effects of the logistic regressions for the binary variables of types of housing (columns 1 to 3) and reason for parental co-residence (column 4) for debt attitudes among graduate borrowers only.

These results indicate that attitudes toward debt are not related to young people's homeownership or renting; all marginal effects are small and not statistically significant at conventional levels. Debt attitude, however, matters when it comes to parental co-residence. Graduate borrowers who agree that "borrowing money from a bank or loan company is a normal part of today's lifestyle" are 4.9 percentage points less likely to live with their parents than those who disagree. By contrast, those who agree that "once you get into debt it is often very difficult to get out of it" are 6.4 percentage points more likely to live with their parents than those who disagree. In addition, for those living with their parents, agreeing that "the idea of leaving university with big debts puts people off going there" is associated with a 12.6 percentage point higher probability of citing financial reasons for parental co-residence compared to disagreeing.¹²

Table 5 also reveals some interesting insights into the relationships between control variables and housing outcomes for graduate borrowers. Compared to all other housing options at age 25, being female increases the probability of owning a house by 4.2 percentage points, whereas there are no gender differences in the probability of renting and parental co-residence. White respondents are more likely than other ethnic groups to own and rent by 9.1 and 16.6 percentage points, respectively. By contrast, White respondents are 24.2 percentage points less likely to live with their parents. Borrowers who grew up in London or the South East are also 13.8 percentage points less likely to rent and 16.6 percentage points more likely to live in their parental home than those in other regions. No differences by religion in housing tenure at age 25 were apparent.

Regarding respondents' socio-economic background, whereas parental NSSEC does not appear to be related to any outcomes, having a parent with a first degree increases the likelihood of renting by 12.9 percentage points. This is mirrored by decreases in the likelihood of homeownership or parental co-residence, by 5.8 and 6.7 percentage points, respectively. All else being equal, graduate

borrowers whose parents were owner-occupiers are 5.9 percentage points less likely to be renters compared to borrowers whose parents were not owner-occupiers, maybe reflecting the transmission of values around housing tenure (Coulter, 2016). Parental income and attending a private school at the age of 13 similarly increase the probability of being an owner-occupier at the age of 25, reinforcing the importance of intergenerational resource transfers (Avery et al., 1992; Blaauboer, 2010).

The state of the housing market in the region of residence the year graduates finished their first degree is also important. Higher average housing prices are related to lower likelihoods of being owner-occupiers and higher probabilities of renting, whereas the average monthly change in housing prices in that year increase the likelihood of owning. The first result may be tied to the ability to buy and the latter to the value of the investment.

Finally, for those who live with their parents, non-White and Muslim individuals have lower chances of doing so for a financial reason. Other controls are not significant, maybe due to smaller cell sizes.

[Insert Table 5 near here]

Limitations

Our findings are based on the analysis of one dataset of a single cohort of English respondents limiting their generalizability, especially to countries with different types of student loan systems and to more recent English cohorts graduating with higher debt.

The paper only covers young adults, aged 25, kerbing our understanding of homeownership when, the average age of first-time buyers was 33 years old in England in 2018-19 (MHCLG, 2020). While our research provides useful information on early housing tenure, further research is required with older cohorts to assess longer-term changes.

Our analysis was also constrained by the absence of data on indicators of parental wealth to assess the role of resource transfers, smaller regions to explore variations in housing prices at a local level, and the amount of student loans originally borrowed to explore its effect. All could influence young people's housing options.

Discussion

Despite these limitations, this study provides new insight into young people's housing tenure in England and the constraining effects of student loan debt. The burden of debt is particularly visible through the advantageous choices afforded graduate non-borrowers. The probability of being homeowners is 13.1 percentage points higher for graduate non-borrowers compared to graduate borrowers, after controlling for demographics, socio-economic background, and the local housing market. The probability of graduate borrowers owning their home is similar to that of non-graduates, despite enjoying higher salaries and being more likely to have a partner – important factors shaping housing decisions. At the age of 25, student loan debt therefore can be a significant barrier to home ownership partially because of loan repayments resulting in lower take-home pay which contribute to a reduced capacity both to save for a deposit and repay a mortgage.

A corollary is that graduate non-borrowers are less likely to rent than both graduate borrowers and non-graduates, by 7.4 and 6.4 percentage points respectively. They are also less likely to live with their parents than non-graduates. Moreover, graduate borrowers living at home are more likely to report they cannot afford to live independently compared with graduate non-borrowers and non-graduates by 11.5 percentage points and 10.0 percentage points, respectively. While parental co-residence may provide opportunities for saving towards future homeownership (Roberts et al.,

2016), our results are further evidence of the financial burden of student loans, with graduate borrowers being pushed into parental co-residence because of their inability to afford rents or a mortgage.

There is also a psychological toll to student loan debt in relation to parental co-residence. Graduate borrowers who are comfortable with a lifestyle that includes loans are less likely to live with their parents (by 4.9 percentage points), while those believing debt is a financial trap are more likely to do so (by 6.4 percentage points). Similarly, graduate borrowers who think high debts on graduation deter university entry are 12.6 percentage points more likely to live with their parents for financial reasons than for other reasons. These findings tangentially support the idea that borrowers self-select out of some housing choices, including homeownership (Elliott and Lewis, 2015), at least in England.

This research highlights the uncharted interaction between two spheres of public policy: housing and HE. Housing policies in England have been criticized for failing to tackle the housing crisis facing young people who cannot afford to buy a home or even rent. Simultaneously, HE funding policies have been criticized for creating unsustainable and growing levels of student loan debt. Our findings provide evidence that, as hypothesized in the literature (McKee and Soaita, 2018; Stone et al., 2011), the financial and psychological toll of student loan debt is associated with lower levels of homeownership and higher chances of parental co-residence amongst young people. The housing crisis young people face is not only structured by the housing market, labour market conditions, mortgage finance and the nature of welfare systems but also by HE funding policies.

This shows failings in both HE and housing policies, and how policy thinking remains siloed within government departments. The most recent government-commissioned report on student funding (DfE, 2019), like those before it, ignores the consequences of student loan debt post-graduation and their inter-relationship with other policies arenas. The sole reference found linking housing to loans was in a House of Commons Committee report (HoC, 2011) on the HE funding reforms which declared student “debt will not affect the graduate’s ability to secure a mortgage” (p. 16). Our findings suggest otherwise. Meanwhile, in response to the “housing crisis” in England, numerous policies have attempted to create more affordable housing for young people – both on the supply and demand sides – and affordable rents (Gallent, 2019; Hilber and Schöni, 2016; Wilson and Bate, 2015). However, housing policies fail to consider the role played by student debt in graduates’ housing tenure patterns or to tackle it directly. Nearly all HE students in England will graduate with student loan debt, which helps structure their housing options and futures. Policy-makers need to acknowledge this relationship to ensure graduate borrowers can afford to buy and rent homes.

Endnotes

¹ Graduates refer to individuals who have been to higher education, independently of completion.

² HE funding policies are devolved in the UK. The policies discussed only apply to full-time undergraduates domiciled in England attending a UK HE institution.

³ The current threshold is £25,000 but it has varied over time (Belfield et al., 2017a).

⁴ Deprived schools are defined as those with the most students eligible for free school lunch, i.e. coming from poor households.

⁵ Reforms in 2012 in England changed the parameters of the student loan system (see Belfield et al., 2017a) but would not have applied to the majority of the Next Steps generation.

⁶ A comparison of the excluded respondents to the respondents in the effective sample is provided in Appendix 2.

⁷ To test for selection on unobservables, we use Stata *eteffects* command that estimates the correlation between the unobservables that affect treatment and outcomes.

⁸ We also fitted a multinomial logit with a three-category outcome (owner, renting, parental co-residence) which lead to similar results. We kept the binary logistic for homogeneity in the paper between the analyses.

⁹ Regional housing price variables use the ONS's nine regions in England, plus Wales, Scotland and Northern Ireland and HM Land Registry's (2019) average (mean) housing prices.

¹⁰ These two controls are not included in the debt attitude equations because they are assessed after debt attitude. It therefore creates an issue with potential reverse causality.

¹¹ The unique longitudinal design of Next Steps poses some limitations. Six years separate the age 25 wave from previous waves. Consequently, we are unable to use variables from the age 25 wave listed in Appendix Table 3 in our models, because they are assessed simultaneously with the outcome, and could create issues of reverse causality. This is the case of income and partnership status, among others.

¹² We also ran mediation regression analyses to assess whether the relationship between student loan borrowing and housing arrangements runs through debt attitude, but failed to find any indirect effect.

References

- Andrew, M. (2010), 'The changing route to owner occupation: The impact of student debt', *Housing Studies*, 25, 1, 39–62, <https://doi.org/10.1080/02673030903361656>
- Appleyard, L. and Rowlingson, K. (2010), 'Home-ownership and the distribution of personal wealth: a review of the evidence' (JRF Programme Paper: Housing Market Taskforce), York: Joseph Rowntree Foundation.
- Avery, R., Goldscheider, F., and Speare, A. J. (1992), 'Feathered nest/gilded cage: Parental income and leaving home in the transition to adulthood', *Demography*, 29, 3, 375–388, <https://doi.org/10.2307/2061824>
- Belfield, C., Britton, J., Dearden, L. and van der Erve, L. (2017a). 'Higher Education funding in England: past, present and options for the future' (IFS Briefing Note No. BN211), London: Institute for Fiscal Studies.
- Belfield, C., Britton, J. and van der Erve, L. (2017b), 'Higher Education finance reform: Raising the repayment threshold to £25,000 and freezing the fee cap at £9,250' (IFS Briefing Note No. BN217), London: Institute for Fiscal Studies.
- Blaauboer, M. (2010), 'Family background, individual resources and the homeownership of couples and singles', *Housing Studies*, 25, 4, 441–461, <https://doi.org/10.1080/02673031003711493>
- Bleemer, Z., Brown, M., Lee, D. and van der Klaauw, W. (2014), 'Tuition, jobs, or housing: What's keeping millennials at home?' (Staff Reports No. 700), New York: Federal Reserve Bank of New York.
- Bolton, P. (2020), 'Student Loan Statistics' (Briefing Paper No. 1079), London: House of Commons Library.
- Brown, M., Haughwout, A., Donghoon, L., Scally, J. and van der Klaauw, W. (2014), 'Measuring student debt and its performance' (Staff Reports No. 668), New York: Federal Reserve Bank of New York.

- Callender, C. and Mason, G. (2017), 'Does student loan debt deter higher education participation? New evidence from England', *Annals of American Political and Social Science*, 671, 1, 20–48.
- Christie, H., Munro, M. and Rettig, H. (2002), 'Accommodating students', *Journal of Youth Studies*, 5, 2, 209–235, <https://doi.org/10.1080/13676260220134458>
- Christophers, B. (2018), 'Intergenerational inequality? Labour, capital, and housing through the ages', *Antipode*, 50, 1, 101–121. <https://doi.org/10.1111/anti.12339>
- Coulter, R. (2016), 'Local house prices, parental background and young adults' homeownership in England and Wales', *Urban Studies*, 54, 14, 1–20.
- Coulter, R. (2018), 'Parental background and housing outcomes in young adulthood', *Housing Studies*, 33, 2, 201–223, <https://doi.org/10.1080/02673037.2016.1208160>
- Cribb, J., Hood, A. and Hoyle, J. (2018), 'The decline of homeownership among young adults' (IFS Briefing Note No. BN224), London: Institute for Fiscal Studies, <https://www.ifs.org.uk/uploads/publications/bns/BN224.pdf> [accessed 19.11.2019].
- de Gayardon, A., Callender, C. and Green, F. (2019), 'The determinants of student loan take-up in England', *Higher Education*, 78, 965–983, <https://doi.org/10.1007/s10734-019-00381-9>
- Department for Education (DfE) (2011), 'LSYPE user guide to the datasets: Wave 1 to wave 7', London: Author.
- Department for Education (2019), 'Independent panel report to the review of post-18 education and funding' (Issue CP 117), London: Author.
- Drukker, D. (2016), 'Estimating treatment effects from observational data using teffects, stteffects, and eteffects', UK Stata Users Group meeting, London, https://fmwww.bc.edu/repec/usug2016/drukker_uksug16.pdf [accessed 21.05.2020].
- Edmonds, T. (2014), 'Mortgage market review' (Briefing Paper No. 05808), London: House of Commons Library.
- Elliott, W., Grinstein-Weiss, M. and Nam, I. (2013), 'Is student debt compromising homeownership as a wealth building tool' (Center for Social Development Working Paper No. 13–33). St

- Louis: Center for Social Development, <https://csd.wustl.edu/Publications/Documents/WP13-33.pdf> [accessed 29.06.2017].
- Elliott, W. and Lewis, M. (2015), 'Student debt effects on financial well-being: Research and policy implications', *Journal of Economic Surveys*, 29, 4, 614–636, <https://doi.org/10.1111/joes.12124>
- Furlong, A. and Cartmel, F. (2007), *Young people and social change: new perspectives* (2nd ed.). Buckingham: Open University Press.
- Gallent, N. (2019), *Whose housing crisis? Assets and homes in a changing economy*, Bristol: Policy Press.
- Gicheva, D. and Thompson, J. (2015), 'The effects of student loans on long-term household financial stability', in B. J. Hershbein and K. M. Hollenbeck (eds.), *Student loans and the dynamics of debt*, Kalamazoo: W.E. Upjohn Institute for Employment Research, 287-316.
- Hilber, C. A. L. and Schöni, O. (2016), 'Housing policies in the United Kingdom, Switzerland, and the United States: lessons learned' (ADB Working Paper Series No. 569), Tokyo: Asian Development Bank Institute.
- Hiltonsmith, R. (2013), 'How student debt reduces lifetime wealth' (Debt-for-Diploma Series), London: Demos.
- HM Land Registry (2019), 'Average-prices-2019-07' [Dataset], <https://www.gov.uk/government/statistical-data-sets/uk-house-price-index-data-downloads-july-2019> [accessed 06.05.2020].
- Houle, J. N. and Warner, C. (2017), 'Into the red and back to the nest? Student debt, college completion, and returning to the parental home among young adults', *Sociology of Education*, 90, 1, 89–108, <https://doi.org/10.1177/0038040716685873>
- House of Commons Business, Innovation and Skills Committee (HoC) (2011), 'Government reform of higher education: twelfth report of session 2010-12. Volume I', HC 885, London: Stationery Office.

- Lee, D. (2013), 'Household debt and credit: Student debt', New York: Federal Bank of New York,
<https://www.slideshare.net/NewYorkFed/household-debt-and-credit-student-debt>
- Luong, M. (2010), 'The financial impact of student loans', *Perspectives on Labour and Income*, 11, 1, 5-18.
- Marks, G. N. (2009), 'The social effects of the Australian higher education contribution scheme (HECS)', *Higher Education*, 57, 1, 71–84.
- McKee, K., Moore, T., Soaita, A. and Crawford, J. (2017), "Generation rent' and the fallacy of choice', *International Journal of Urban and Regional Research*, 41, 2, 318–333.
<https://doi.org/10.1111/1468-2427.12445>
- McKee, K. and Soaita, A. M. (2018), 'The 'frustrated' housing aspirations of generation rent' (R2018_06_01), Glasgow: UK Collaborative Centre for Housing Evidence.
- Mezza, A. A., Ringo, D. R., Sherlund, S. M. and Sommer, K. (2015), 'On the effect of student loans on access to homeownership' (Finance and Economics Discussion Series No. 2016–10), Washington: Board of Governors of the Federal Reserve System,
<http://www.federalreserve.gov/econresdata/feds/2016/files/2016010pap.pdf> [accessed 06.09.2017].
- Miller, J. J. and Nikaj, S. (2018), 'Student loan debt, educational attainment, and tenure choice', *Education Economics*, 26, 4, 393–410, <https://doi.org/10.1080/09645292.2018.1430749>
- Ministry of Housing, Communities & Local Government (MHCLG) (2019a), 'English Housing Survey data on owner occupiers, recent first time buyers and second homes', London: Author,
<https://www.gov.uk/government/statistical-data-sets/owner-occupiers-recent-first-time-buyers-and-second-homes> [accessed 25.10.2019].
- Ministry of Housing, Communities & Local Government (2019b), 'Public attitudes to house building: findings from the British Social Attitudes survey 2018', London: Author,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/841815/BSA_House_building_report.pdf [accessed 11.04.2019].

- Ministry of Housing, Communities & Local Government (2020), 'English Housing Survey: Headline report, 2018-19', London: Author,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/860076/2018-19_EHS_Headline_Report.pdf [accessed 05.05.2020].
- Mishory, J. and O'Sullivan, R. (2012), 'Denied? The impact of student debt on the ability to buy a house', Washington: Young Invincibles,
http://www.cgsnet.org/ckfinder/userfiles/files/Denied-The-Impact-of-Student-Debt-on-the-Ability-to-Buy-a-House-8_14_12.pdf [accessed 29.06.2017].
- Newman, K. and Aptekar, S. (2008), 'Sticking around: Delayed departure from the parental nest in Western Europe', in S. Danziger and C. E. Rouse (eds.), *The price of independence: The economics of early adulthood*, New York: Russel Sage Foundation, 207–230.
- Office for National Statistics (ONS) (2017), *Housing affordability in England and Wales: 2016*, Newport: Author,
<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingaffordabilityinenglandandwales/1997to2016> [accessed 11.04.2019].
- Office for National Statistics (2018), 'Young adults living with parents, regions of England and UK constituent countries, 1996 to 2017' [Dataset]. Newport: Author,
- Office for National Statistics (2019), 'Index of private housing rental prices, UK: monthly estimates' [Dataset], Newport: Author,
<https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/indexofprivatehousingrentalpricesreferencetables> [accessed 11.04.2019].
- Oosterbeek, H. and van den Broek, A. (2009), 'An empirical analysis of borrowing behaviour of higher education students in the Netherlands', *Economics of Education Review*, 28, 2, 170–177,
<https://doi.org/10.1016/j.econedurev.2008.01.005>

- Preece, J., Crawford, J., McKee, K., Flint, J. and Robinson, D. (2020), 'Understanding changing housing aspirations: a review of the evidence', *Housing Studies*, 35, 1, 87-106,
<https://doi.org/10.1080/02673037.2019.1584665>
- Purcell, K., Elias, P., Atfield, G., Behle, H., Ellison, R., Luchinskaya, D., Snape, J., Conaghan, L. and Tzanakou, C. (2012), 'Futuretrack Stage 4: transitions into employment, further study and other outcomes', Manchester: Higher Education Careers Services Unit,
http://www.hecsu.ac.uk/assets/assets/documents/Futuretrack_Stage_4_Final_report_6th_Nov_2012.pdf [accessed 09.08.2017].
- Roberts, S., Eager, B., Anderson, I., Baxter, R. and Boyd, P. (2020), 'Can millennials get on the housing ladder without help?', *The Guardian*, 7 January.
- Roberts, J., Noden, P., West, A. and Lewis, J. (2016), 'Living with the parents: the purpose of young graduates' return to the parental home in England', *Journal of Youth Studies*, 19, 3, 319-37.
- The Student Fees (Amounts) (England) (Amendment) Regulations 2008, no. 2507, Parliament (2008).
- Shand, J. M. (2007), 'The impact of early-life debt on the homeownership rates of young households: An empirical investigation', Arlington: Federal Deposit Insurance Corporation Center for Financial Research,
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.527.6788&rep=rep1&type=pdf> [accessed 06.09.2017].
- Stone, J., Berrington, A. and Falkingham, J. (2011), 'The changing determinants of UK young adults' living arrangements', *Demographic Research*, 25, 629-666,
<https://doi.org/10.4054/DemRes.2011.25.20>
- Student Loans Company (SLC) (2018), 'Student loans in England: Financial year 2017-18' (Statistics Publication), Glasgow: Author.
- Student Loans Company (2020), 'Previous annual repayment thresholds',
<https://www.gov.uk/guidance/previous-annual-repayment-thresholds> [accessed 27.09.2020].

Velez, E., Cominole, M. and Bentz, A. (2019), 'Debt burden after college: the effect of student loan debt on graduates' employment, additional schooling, family formation, and home ownership', *Education Economics*, 27, 2, 186–206,
<https://doi.org/10.1080/09645292.2018.1541167>

Wilson, W. and Bate, A. (2015), 'Affordable rents (England)' (Briefing Paper No. 05933), London: House of Commons Library.

Table 1 - Debt attitude items

1	Getting a degree will mean you get better paid jobs later on in life.
2	Owing money is always wrong.
3	Borrowing money from a bank or loan company is a normal part of today's lifestyle.
4	Once you get into debt it is often very difficult to get out of it.
5	Student loans are a cheap way to borrow money.
6	The idea of leaving university with big debts puts people off going there.

Table 2 - Housing options of 25 year-olds in England, by higher education participation and borrowing status

	Non- graduates	Graduate non- borrowers	Graduate borrowers
Housing situation (N=6995)			
Rent or other arrangement	0.51	0.40*	0.48*
Owner-occupier (including mortgage)	0.17	0.28*	0.15
Live with parents	0.33	0.33	0.37*
Living with parents (N=2454)			
Boomerang	0.66	0.48*	0.34*
Never left	0.34	0.53*	0.66*
Reason for living with parents (N=2423)			
Would like but cannot afford own home	0.56	0.4*	0.57
Does not wish to move into own home now	0.29	0.48*	0.31
Other	0.16	0.13	0.11*

Note: * indicates a significant difference at the 0.5 level between the coefficient and the coefficient for non-graduates, using Wald tests.

Table 3 - Details of housing, by housing arrangement, higher education participation and borrowing status

	Non-graduates	Graduate non-borrowers	Graduate borrowers
<u>Owners</u>			
Mortgage amount – median (sd)	£500 (540)	£550 (378)	£551 (294)*
<u>Renters</u>			
Renting from			
A Local Authority	0.2	0.07*	0.04*
A Housing Association	0.23	0.11*	0.07*
A private landlord	0.48	0.73*	0.79*
A parent	0.05	0.04	0.05
Someone else	0.04	0.04	0.04
Annual Rent paid– median (sd)	£5400 (3545)	£7950 (3716)*	£7200 (4442)*
<u>Parental co-residence</u>			
Type of agreement with parents			
Pays rent	0.26	0.09*	0.16*
Lives rent-free	0.29	0.62*	0.45*
Pays board	0.45	0.29*	0.39*
Annual Rent paid – median (sd)	£4042 (2838)	£4800 (3673)	£4500 (4520)

Note: * indicates a significant difference at the 0.5 level between the coefficient and the coefficient for non-graduates, using Wald tests. For continuous variables, the Wald tests analyses mean differences.

Table 4 – Average treatment effects on the treated using AIPW estimators for the relationship between higher education and borrowing on housing

	(1) Owner	(2) Renting	(3) Parental co- residence	(4) Financial reason
<u>ATET</u>				
Graduate non-borrowers vs Non-graduates	0.160*** (0.0283)	-0.0644* (0.0315)	-0.0934* (0.0392)	-0.0142 (0.0814)
Graduate borrowers vs Non-graduates	0.0297 (0.0181)	0.00987 (0.0253)	-0.0362 (0.0264)	0.100* (0.0457)
Graduate borrowers vs Graduate non-borrowers	-0.131*** (0.0255)	0.0743*** (0.0250)	0.0573 (0.0311)	0.115 (0.0780)
<u>Potential outcome mean</u>				
Non-graduates	0.133*** (0.0142)	0.469*** (0.0257)	0.395*** (0.0233)	0.478*** (0.0517)
Graduate non-borrowers	0.293*** (0.0255)	0.405*** (0.0226)	0.301*** (0.0406)	0.464*** (0.0687)
N	4481			1548

Note: The outcome for column (1) is coded 1 for owner and 0 for renting or parental coresidence. The outcome for column (2) is coded 1 for renting and 0 for owner or parental coresidence. The outcome for column (3) is coded 1 for parental co-residence and 0 for owning or renting. The outcome for column (4) is coded 1 for financial reason and 0 for other reasons. The treatment equations – with non-graduate, graduate non-borrowers, and graduate borrowers as outcome – control for gender, ethnicity, religion, the region where they lived at age 14, parental NSSEC, parental education, parental housing tenure, parental income, and type of schooling at age 13 (private or state). The outcome equations – with housing options as outcomes – control for gender, ethnicity, the region where they lived at age 14, parental NSSEC, parental education, parental housing tenure, parental income, type of schooling at age 13, average housing price in 2011 and average monthly change in housing price in 2011 in their region of residence at age 25, income at age 19, and number of months worked by age 25. The outcome equations for the reason to live with one's parents exclude the type of schooling because of small cells.

Standard errors are in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$

Table 5 - Estimated marginal effects for the association between debt attitude and housing outcomes for graduate borrowers

	(1) Owner	(2) Renting	(3) Parental co- residence	(4) Financial reason
Getting a degree will mean you get better paid jobs later on in life	0.0351 (0.0279)	-0.0269 (0.0300)	-0.00759 (0.0375)	-0.0155 (0.0583)
Owing money is wrong	0.0368 (0.0241)	0.00247 (0.0245)	-0.0355 (0.0187)	-0.00401 (0.0396)
Borrowing money from a bank or loan company is a normal part of today's lifestyle	-0.0142 (0.0348)	0.0667 (0.0376)	-0.0487* (0.0219)	0.0468 (0.0598)
Once you get into debt it is often very difficult to get out of it	-0.0365 (0.0223)	-0.0273 (0.0203)	0.0638* (0.0288)	-0.0534 (0.0397)
Student loans are a cheap way to borrow money	0.0111 (0.0173)	-0.0188 (0.0168)	0.00549 (0.0156)	0.0504 (0.0289)
The idea of leaving university with big debts puts people off going there	0.00688 (0.0313)	0.0188 (0.0267)	-0.0275 (0.0240)	0.126** (0.0486)
Female	0.0419*** (0.0143)	-0.0322 (0.0225)	-0.0112 (0.0213)	-0.0650 (0.0355)
White	0.0912*** (0.0266)	0.166*** (0.0285)	-0.242*** (0.0296)	0.214*** (0.0442)
Muslim	0.0199 (0.0519)	-0.0465 (0.0468)	0.0239 (0.0430)	-0.187*** (0.0611)
Region at age 14				
London/South East	-0.0204 (0.0256)	-0.138*** (0.0443)	0.166*** (0.0314)	0.0538 (0.0630)
Parental occupation				
Intermediate occupations	0.0119 (0.0203)	0.00858 (0.0250)	-0.0224 (0.0280)	0.0109 (0.0460)
Routine and manual occupations	-0.00651 (0.0204)	-0.00803 (0.0225)	0.0113 (0.0171)	-0.0122 (0.0460)
Unemployed	-0.0334 (0.0245)	-0.00894 (0.0294)	0.0336 (0.0333)	-0.0407 (0.0504)
Parental education				
Higher education	-0.0577*** (0.0156)	0.129*** (0.0275)	-0.0667*** (0.0200)	0.0727 (0.0513)
Parental housing tenure				
Owner-occupiers	0.0335 (0.0246)	-0.0594* (0.0279)	0.0395 (0.0221)	0.00986 (0.0463)

Parental permanent equivalised income (in £10,000)	0.0216* (0.00864)	-0.00902 (0.0112)	-0.0163 (0.00941)	-0.0294 (0.0162)
Private schooling	0.0794*** (0.0278)	0.0118 (0.0467)	-0.117 (0.0769)	
2011 housing price averages in region	-0.0164*** (0.00313)	0.0204*** (0.00545)	-0.00658 (0.00427)	0.00637 (0.00878)
2011 average monthly change in housing prices in region	0.356*** (0.115)	-0.249 (0.236)	-0.0557 (0.195)	-0.151 (0.253)
Observations	2306	2306	2306	789

Note: The outcomes are coded similarly to Table 4.
Standard errors are in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$

Appendix 1: Attrition in Next Steps sample

As seen in Table A1, attrition in Next Steps culminated at 50 percent with the Age 25 wave (wave 8). As often is the case, attrition has biased Next Steps sample towards higher socio-economic backgrounds, warranting some caution in the interpretation of results based on its analysis (Siddiqui, Boliver, & Gorard, 2019). However, this study looks at housing as an outcome, which is already highly stratified by socio-economic background. Any effect in this somewhat homogenous sample would therefore be more meaningful.

Table A1. Attrition in Next Steps over the eight waves

	Number of respondents
Wave 1	15,770
Wave 2	13,539
Wave 3	12,439
Wave 4	11,801
Wave 5	10,430
Wave 6	9,799
Wave 7	8,682
Wave 8	7,707

Source: Calderwood, L. (2017), 'Next Steps. Sweep 8 - Age 25 survey. User Guide (First Edition)', London: UCL Institute of Education.

Siddiqui, N., Boliver, V. and Gorard, S. (2019), 'Reliability of longitudinal social surveys of access to higher education: The case of Next Steps in England', *Social Inclusion*, 7, 1, 80–89.

Appendix 2: Sample exclusion

Table A2 provides a socio-economic description of the respondents who entered higher education but did not provide information on their borrowing (n=690) in any wave, and compares them to the effective sample. The two groups are relatively similar.

	Effective Sample	Excluded
Female	0.55	0.59*
White	0.68	0.69
Muslim	0.14	0.12
Live in South East at age 14	0.31	0.32
Private schooling	0.04	0.04
Parental occupation		
Higher managerial	0.35	0.34
Intermediate	0.18	0.19
Routine and Manual	0.28	0.30
Unemployed	0.19	0.16
Parental education – higher education	0.19	0.15*
Parents owner-occupiers	0.75	0.75
Parental permanent equivalised income (in £10,000) - median (sd)	1.20 (1.23)	1.17(1.18)

Note: * indicates a significant difference between the two samples at a 0.05 level, using a Wald test.

Appendix 3: Descriptive table

Table A3 provides descriptive statistics for all three categories analysed in this paper. It shows that non-graduates come from lower socio-economic backgrounds than those who went to HE. At age 25, non-graduates have been employed for longer, but have lower income due to their lack of tertiary degree.

	Non-graduates	Graduate non-borrowers	Graduate borrowers
Female	0.52	0.62*	0.57*
White	0.77	0.58*	0.62*
Muslim	0.12	0.21*	0.15*
Live in South East at age 14	0.26	0.36*	0.35*
Private schooling	0.01	0.12*	0.05*
Parental occupation			
Higher managerial	0.24	0.44*	0.43*
Intermediate	0.18	0.18	0.18
Routine and Manual	0.36	0.20*	0.23*
Unemployed	0.21	0.18	0.16*
Parental education – higher education	0.08	0.29*	0.28*
Parents owner-occupiers	0.65	0.86*	0.82*
Parental permanent equivalised income (in £10,000) - median (sd)	0.96 (0.86)	1.57 (2.28)*	1.42 (1.27)*
Income at age 19			
No job	0.33	0.68*	0.59*
£0.00 - £4,999.99	0.06	0.16*	0.20*
£5,000.00 - £9,999.99	0.18	0.09*	0.13*
More than £10,000.00	0.42	0.06*	0.08*
At age 25			
Number of months employed - median (sd)	78 (38.5)	41 (19.5)*	41 (24.0)*
Earnings - median (sd)	6.62 (6.08)	10.60 (13.33)*	9.35 (9.69)*
Cohabiting/married	0.59	0.63	0.67*

Note: * indicates a significant difference at the 0.5 level between the coefficient and the coefficient for non-graduates, using Wald tests. For continuous variables, the Wald tests analyses mean differences.